4-6-2020

# Sanitizing N95 Masks with Alternatives Like UV Light; UNH Expert Offers Comment

Robbin Ray

# Sanitizing N95 Masks with Alternatives Like UV Light; UNH Expert Offers Comment

**Monday, April 6, 2020**




DURHAM, N.H.—As the coronavirus spreads so does the threat to medical personnel on the front lines of care. With the number of cases expected to surge in the United States and supplies of the much needed N95 masks dwindling, medical communities are desperately looking for alternative solutions for disinfecting masks that healthcare workers are being forced to reuse. As a nationally known expert in disinfectant methods, Jim Malley, professor of civil and environmental engineering at the University of New Hampshire, says methods like UV light, heat & humidity and vaporized hydrogen peroxide are the best known viable practices and while they are not long-term solutions, if used correctly, they can be effective in emergency situations.

**Malley can be reached at Jim.Malley@UNH.edu (mailto:Jim.Malley@UNH.edu) or (603) 759-1541.**

“This is a unique and challenging time and medical communities are looking beyond their normal practices to find ways to keep their staff safe while treating COVID-19 patients,” said Malley. “UV light offers a potential option that can be a safe and cost effective way to sanitize masks, if the right amount of light, for the right length of time, is dosed by a well understood optical device.”

Malley has over 30 years of experience using chemical and physical options, in particular UV, to disinfect water, air and surfaces from bacteria, viruses and protozoan cysts. His expertise has helped guide front line medical practitioners and first responders from Boston to Denver and beyond looking for facts on the most effective way to use the UV lights. They are being used in hospitals and hanging in ambulances so EMTs can sanitize their surfaces and implements on the go. Malley estimates about a third of the calls he receives are from healthcare professionals in rural areas that don’t have the same resources as those in cities.

“A lot of large vaporized hydrogen peroxide systems are being set up in cities around the country to help sanitize masks but UV is a more feasible low tech and low volume option for first responders and individual healthcare workers often found in rural areas,” said Malley. “There are pros and cons to both but the need is just so great and growing every day from nursing homes to hospitals, labs and ambulances—these disinfectant options are tools in a tool box and right now we need to use all the tools we have.”

UV light penetrates the mask and works by damaging the molecular bonds that hold together the nucleic acids (DNA or RNA) of the viruses or bacteria and stops them from infecting and/or replicating within a human cell. The UV light used is short wave and cannot be seen by the human eye so to effectively kill the virus requires an understanding of the irradiance—amount of light energy or UV intensity—the length of time the mask is dosed, and knowledge of the UV optics of the disinfection device.

Malley stresses that it is important that masks are clean because any substance on the inside or the outside of the mask, even something as simple as sunscreen, cosmetics or lip balm, could block the UV light from working on a particular portion of the mask.

“In a perfect world, masks should be worn once and discarded,” said Malley. “But in a pandemic, with all the supply shortages and strains on healthcare system infection control practices, disinfection practices like heat and humidity applications), ultraviolet light and/or hydrogen peroxide vapor, offer alternative disinfectant options for PPEs.”

The University of New Hampshire (http://unh.edu) inspires innovation and transforms lives in our state, nation, and world. More than 16,000 students from all 50 states and 71 countries engage with an award-winning faculty in top-ranked programs in business, engineering, law, health and human services, liberal arts and the sciences across more than 200 programs of study. As one of the nation’s highest-performing research universities, UNH partners with NASA, NOAA, NSF and NIH, and receives more than $110 million in competitive external funding every year to further explore and define the frontiers of land, sea and space.

Media Contact

Robbin Ray ’82 (/unhtoday/contributor/robbin-ray-82) | Communications and Public Affairs | robbin.ray@unh.edu (mailto:robbin.ray@unh.edu) | 603-862-4864

**LATEST NEWS**

**University of New Hampshire Announces May 2021 Graduates (/unhtoday/news/release/2021/05/22/university-new-hampshire-announces-may-2021-graduates)**
May 22, 2021

**UNH Works to Solve a Million Dollar Problem for Aquaculture Industry (/unhtoday/news/release/2021/05/20/unh-works-solve-million-dollar-problem-aquaculture-industry)**
May 20, 2021

**UNH Finds Angel Investor Market on the Rise in 2020 (/unhtoday/news/release/2021/05/19/unh-finds-angel-investor-market-rise-2020)**
May 19, 2021

**Media Advisory: University of New Hampshire 2020 and 2021 Commencements (/unhtoday/news/release/2021/05/18/media-advisory-university-new-hampshire-2020-and-2021-commencements)**
May 18, 2021

**UNH Research Estimates 1.4 Million Children Have Yearly Violence-Related Medical Visits (/unhtoday/news/release/2021/05/12/unh-research-estimates-14-million-children-have-yearly-violence-related)**
May 12, 2021

VIEW ALL >